

Hand and wrist surgery: study of efficacy about a new way for one-day low-complexity surgery

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Abstract

Background: In our Hand Micro-surgery Department surgery procedures identified by some regional legislation as “low-complexity care interventions” (BOCA) are carry out. For this reason, as pilot experience, it has been decided to apply Diagnostic Therapeutic Path (DTP) to this type of surgeries in order to improve the offered service.

Methods: From 2011 to 2012 we collected data about 410 BOCA procedures and we monitored a series of indicators.

Results: The patients were classified as ASA score 1-2 (99%) and they had a postoperative observation time less than 24h (95%). They reported a constant reduction of pain in the days after surgery (VAS ≤ 4). In 27 cases were found post-surgical complications. All patients evaluated positively this DTP.

Conclusions: The obtained results were used to improve the activity in others Departments of our Institute.

Introduction

In our Hand Micro-surgery Department, in the context of Day-Hospital ward, different conditions such as carpal tunnel syndrome, De Quervain’s disease, trigger finger, tendonitis of the wrist and elbow are treated with greater frequency. Most of these diseases require minimally invasive surgery with reduced length of hospital stay. The recent regional regulation of the

Lombardy Region (# VIII/9014 resolution of 20 February 2009 and subsequent DGR 10804 of 16 December 2009) introduced the new macro-activities “Ambulatory Surgery in Low Complexity Dealership” for the new Regional Health System. It identifies a list of benefits payable in outpatient in order to improve the quality and efficiency of the offered service. Surgeries such as neurolysis of median nerve, the tenolisi for de Quervain’s disease, removal of growths,

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the pulley release for trigger finger and other minor surgeries under local anesthesia, are returned to that legislation. In anticipation of the enlargement of diseases and surgeries available in such a scheme, the department of Micro Surgery of the Hand has experienced the application of a Diagnostic Therapeutic Path (1) (related to these surgeries) that could respond to the law directives and improve the offered service (2-4).

Materials and methods

In order to create an efficient and useful path, a multidisciplinary team formed by doctors of Medical Management of the Institute, orthopedic doctors belonging to the department of DH Surgery of the Hand, nursing staff and other doctors interested in future projects (knee surgery) was formed. After a careful review of the available literature (5-8) and an analysis of related diseases treated in the department, the group has defined and described the path that leads to a patient's hand surgery in low-complexity care: from access to services (first visit and request- in clinics) until discharge, taking care to describe all the actors involved and their responsibilities. In addition the aspects of the course of treatment are monitored (Table 1: indicators). The standards of these indicators have been defined based on literature data and on an evaluation of local situation. We made two schedules of data collection: one for the ambulatory path information, the other to collect information for follow-up. Therefore a customer satisfaction questionnaire to assess patient satisfaction in comparison to the old route has been developed (3).

From April to June 2011, we conducted a pilot study to test the feasibility of the developed tools. From June 2011 to June 2012 patient data falling within the criteria of the study has been collected. During

that period 410 patients, 320 females and 90 males, with a mean age of 56 years (range 20-84 years) have been subjected to outpatient surgery with low complexity care.

Results

The patients were affected by the following conditions: Carpal tunnel syndrome: 210; De Quervain's disease: 82; neoforations of the hand and wrist: 52; trigger finger: 8; other diseases covered by the regional law: 58.

The data acquisition started with the office visit, the supposed diagnosis and indication for surgery. The reservation of surgery was handled by administrative staff separate from inpatient day surgeries' admissions but with access to the common pre-admission procedures. The conduct of investigations in the pre-admission has allowed us to speed up bureaucracy in the day of surgery. On that occasion also for accepting administrative, medical and discharge records were used in computer systems usually employed for the management of the patient in the clinic, allowing a stream of data equivalent to the office visit is not only theoretical.

The patients belong mainly to ASA categories 1 (284 patients) and 2 (122 patients), only two patients among those enrolled were classified as ASA 3 (in two cases the ASA score was not reported).

The observation post-operative period was for the majority of patients less than 3 hours (356 cases), only 37 cases was more than 3 hours and in 11 cases more than 24 hours; in 6 cases it was not reported the observation period post-operatively. In 95 % of cases, episodes of ambulatory low complexity surgery suspects less than 24 h of admission, to report that the legislation grants the approval of a night of observation after surgery.

In 354 cases peri-operative antibiotic prophylaxis was carried out according to

corporate guidelines in force (preoperative Cefazolin 2g), in 46 cases, it has not been reported any type of prophylaxis performed and in 10 cases we used a different molecule than as indicated in the guidelines.

Patients were subjected to the assessment scale VAS (Visual Analogue Scale) for pain: it has been reported an average pain enrolled at the entrance equal to 5 points out of a possible 10. This survey was carried

out after 1 day (average value of 4/10) after 7 days (3/10) and after 14 days the date of surgery (2/10) via telephone contact and/or outpatient visit.

In 27 cases have been reported some complications: 4 cases of persistent edema of the soft tissues, 20 cases of residual paresthesia at 10 days in the area of the surgical wound, and 3 cases of peri-operative infection.

Table 1 - Efficiency and quality indicators.

Step	Indicator	Numerator	Denominator	Standard	Result
Pre-Operative evaluation	% patients subjected to pain assessment	patients subjected to pain assessment	Surgery patients	100%	100%
	% patients with pain assessment >5	patients with pain assessment >5	Surgery patients	--	> 50%
	% patients subjected to ASA assessment	patients subjected to ASA assessment	Surgery patients	100%	100%
	% patients with ASA assessment ≤ 2	patients with ASA assessment ≤ 2	Surgery patients	--	98%
Pre-Admission procedures	% patients underwent to blood exams	% patients underwent to blood exams	Surgery patients	<70%	<70%
	% patients underwent to ECG	patients underwent to ECG	Surgery patients	<70%	<70%
	% patients underwent to cardiologic visit	patients underwent to cardiologic visit	Surgery patients	<70%	<70%
	% patients underwent to thoracic X-ray	patients underwent to thoracic X-ray	Surgery patients	<70%	<70%
	Antibiotic prophylaxis	Correct antibiotic prophylaxis	Surgery patients	100%	87%
Observation	% patients underwent to observation time >48 h	patients underwent to observation time >48 h	Surgery patients	<10%	<10%
Discharge	% patients discharged in less than 48 h	patients discharged in less than 48 h	Discharged patients	>90%	>90%
Follow-up	Complications	# of patients with complications	Discharged patients	<5%	6%

The DTP was evaluated for a period from June to December 2011 from patients through a customer satisfaction questionnaire: all patients evaluated positively the course of treatment in the aspects of speed, quality of the environment, professionalism of the operators, the convenience of structure.

Discussion

For most of the indicators identified expected standards were reached. Only for two indicators the desired results have not been achieved (Table 1). These were the complication rate (indicator $<5\%$) and the correct application of antibiotic prophylaxis. The complication rate recorded (6.6%) will be subjected to a careful evaluation by both clinicians and those who deal with organizational and managerial aspects. In particular the aim of this process is to verify if for some diseases it is necessary to provide outcome indicators ad hoc or whether there are critical issues in the clinical management of the patient.

The non-administration of antibiotic prophylaxis in accordance with corporate guidelines was also found in other departments of the company. Therefore, after verification of the correct application of guidelines for antibiotic prophylaxis in individual Complex Structures, the Institute Guidelines were reviewed, and now include the non-administration of antibiotic therapy for low complexity surgery of the hand if not in patients \geq ASA 3.

The overall results demonstrate the effectiveness of participatory planning, since organizational aspects have been respected. This adherence to a shared protocol has allowed us to reach good results in clinical terms. The points do not matching the expectations are going to study and resolution. The patients were satisfied with the course followed.

Conclusion

The low complexity assistance surgical ambulatory path applied to hand surgery has been strengthened. This made it possible to repeat the same strengthening also for surgeries performed on other parts of the body, involving other structures. The results of the study showed that the procedure was appropriated and efficient, and this permitted the above-mentioned operation to be part of the setups of activities, as provided by law, without however affecting the quality and the standards used.

Riassunto

Interventi di chirurgia della mano: studio di efficacia dell'applicazione di una nuova modalità di erogazione assistenziale-chirurgia ambulatoriale a bassa complessità.

Introduzione: Il maggior numero di interventi chirurgici effettuati nel reparto di Micro-chirurgia della mano dell' I.O. G. Pini di Milano rientra, come tipologia, nei casi individuati dalla normativa regionale come "interventi a bassa complessità assistenziale (BOCA)". Come reparto pilota, per la successiva estensione a tutto l'Istituto, si è quindi deciso di sperimentare l'applicazione di un Percorso Diagnostico Terapeutico (DTP) relativo a tali interventi.

Materiali e Metodi: Dal 2011 al 2012 sono stati raccolti i dati relativi a 410 pazienti sottoposti a interventi BOCA e sono stati analizzati un pannello di indicatori.

Risultati: Nella quasi totalità dei casi i pazienti sono stati classificati con punteggio ASA 1-2 (99%) e hanno raggiunto un periodo di osservazione postoperatoria inferiore alle 24 h (95%). Essi hanno riferito una riduzione costante del dolore nei giorni di convalescenza ($VAS \leq 4$). In 27 casi si sono riscontrate complicanze post-chirurgiche. La totalità dei pazienti ha valutato positivamente tale percorso di cura.

Conclusioni: I risultati ottenuti sono stati utilizzati per implementare tale percorso diagnostico-terapeutico in altre UU.OO. All'interno dell'Istituto Ortopedico G. Pini.

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